film and insulating film.

REMARKS

In paragraphs 2 and 4 of the final Action, claims 1-10 were rejected under 35 U.S.C. 112, first and second paragraphs. In paragraph 6 of the final Action, claims 1-5, 9 and 10 were rejected under 35 U.S.C. 102(b) as being anticipated by Tsai et al. In paragraph 8 of the final Action, claims 6-8 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai et al. in view of Ueoka et al. In paragraph 9 of the final Action, claims 6-8 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai et al in view of Ota.

In view of the rejections, claims 1-7 and 9 have been cancelled, and claim 8 has been amended. Claims 8 and 10 are pending in the application.

As recited in claim 8, a glass substrate for a display comprises an alkali-containing glass substrate; an under layer for preventing diffusion of alkali ions formed on a surface of said alkali-containing glass substrate; a barrier film mainly formed of at least one of indium oxide and tin oxide, and deposited on the under layer; an insulating film deposited on the barrier film and having a surface electrical resistance kept in a range from 1.0×10^{6} Ω/□ to 1.0×10^{16} Ω/□ even after heating process at 550 °C for 1 hour; and an electrode film for forming a display panel deposited on the insulating film. Diffusion of metal ions of the electrode film into the glass substrate is substantially prevented by the barrier film and insulating film.

Namely, in the invention, the electrode film is deposited on the substrate through the barrier film and the insulating film. Thus, although the glass substrate contains alkali components, metal ions contained in the electrode film do not substantially diffuse into the glass substrate to thereby prevent the stain due to the metal ions. Especially, in the invention, even in the PDP manufacturing process, the diffusion of metal ions can be efficiently prevented.

In Tsai et al., a liquid crystal display device includes first and second transparent conductive electrodes 10a, 10b, and a liquid

crystal 17 between the first and second electrodes 10a, 10b. Each electrode 10a, 10b has the same structure, e.g. a glass substrate 12a, a TiO_2-SiO_2 composite undercoat 13a, a transparent conductive ITO layer 14a, and a TiO_2-SiO_2 composite overcoat 15a. The ITO layer 14a is used as an electrode for the liquid crystal display.

In the invention, the under layer is deposited on the glass substrate, which may be SiO_2, TiO_2 and so on. In Tsai et al., the undercoat 13a is deposited on the glass substrate 12, and the undercoat 13a is a TiO_2-SiO_2 composite layer. In view of the material used as the undercoat 13a, the undercoat 13a in Tsai et al. corresponds to the under layer of the invention.

In the invention, the barrier film mainly formed of indium oxide and/or tin oxide is formed on the underlayer. In Tsai et al., the ITO layer 14 is deposited on the TiO_2-SiO_2 composite undercoat 13a. Since ITO layer 14 is used as the electrode in Tsai et al., the ITO layer does not constitute the barrier film of the invention.

However, it is possible to consider the ITO layer 14 as the barrier film because the ITO layer 14 contains indium oxide used as the barrier film of the invention. In this case, it comes to a situation that the LCD does not have an electrode, and can not be operated as intended because the ITO layer 14 is used as the barrier film and there is no electrode in Tsai et al. In this case, since Tsai et al. does not operate as the LCD, it should be recognized that the ITO layer 14 is the electrode as disclosed in Tsai et al., so that the barrier film of the invention is not formed in Tsai et al.

In the invention, further, the insulating film having the specific surface electrical resistance is formed on the barrier film, and the electrode film corresponding to the ITO layer 14 in Tsai et al. is deposited on the insulating film. In Tsai et al., the insulating film of the invention deposited on the barrier film is not disclosed or suggested.

In the invention, in case metal is deposited on the barrier film, diffusion of metal ions of the metal into the glass substrate is substantially prevented by the barrier film. In Tsai et al., the diffusion of the metal ions into the substrate is not disclosed or discussed at al. The TiO_2-SiO_2 composite layer is used such that the

out diffusion of impurities (sodium ions) can be prevented from soda lime glass into liquid crystal to destroy the property of the liquid crystal.

As explained above, the barrier film formed of at least one of indium oxide and tin oxide, and the insulating film of the invention are not disclosed or even suggested in Tsai et al. Tsai et al. only discloses the under layer of the invention.

In Ueoka et al., as stated in the Action, silver is provided on a transparent electrode to form a bus electrode. However, the barrier film and the insulating film used in the present invention are not disclosed or suggested in Ueoka et al.

In Ota, a low resistive material is layered on a transparent conductive film in a plasma display, and the low resistive material is specified as a bus electrode. Although the electrode film used in the invention is disclosed in Ota, the barrier film and the insulating film used in the present invention are not disclosed or suggested in Ota.

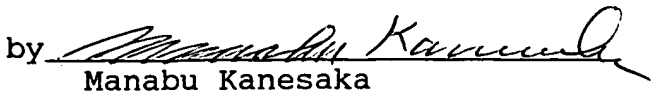
As explained above, Tsai et al. has the ITO layer 14a above the TiO_2-SiO_2 composite layer corresponding to the under layer of the invention. However, in Tsai et al., the ITO layer 14a operates as the electrode, not used as the barrier film of the invention. If the ITO layer 14a is considered as the barrier film of the invention, Tsai et al. does not have an electrode and can not operate as the LCD. Further, in the invention, the insulating film is deposited on the barrier film, and the electrode film is formed on the insulating film above the barrier film. In this respect, even if the ITO layer is considered as the barrier film, Tsai et al. does not have the insulating film and the electrode of the invention. Tsai et al. does not disclose or even suggest the features of the invention.

Other cited references do not disclose or suggest the features of the invention. Even if the cited references are combined, the present application is not obvious from the cited references.

Reconsideration and allowance are earnestly solicited.

Respectfully submitted,

KANESAKA AND TAKEUCHI

by 

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8.(twice amended) A glass substrate for a display comprising:

an alkali-containing glass substrate;

an under layer for preventing diffusion of alkali ions formed on a surface of said alkali-containing glass substrate;

a barrier film mainly formed of at least one of indium oxide and tin oxide, and deposited on [a substantially entire outer surface of] the under layer;

an insulating film deposited on the barrier film and having a surface electrical resistance kept in a range from 1.0×10^{6} Ω/□ to 1.0×10^{16} Ω/□ even after heating process at 550 ℃ for 1 hour; and

an electrode film for forming a display panel deposited on the insulating film so that diffusion of metal ions of the electrode film into the glass substrate is substantially prevented by the barrier film and insulating film.